

## Our Office Position on Dental Radiographs - Robert E. McCalla, DDS

Like many medical procedures, dental X-rays have an pros and cons. The pro is that an X-ray allows your dentist to see bones, tissues, and hidden surfaces of your teeth that can not be seen by any other method. The con is that X-rays expose you to radiation. Four bitewing X-rays, which is what many people get in a routine exam, give about 5 microsieverts ( $\mu\text{Sv}$ ) of radiation, according to the American College of Radiology. That can be less radiation than you can get in a normal afternoon outdoors (depending on geographical location and altitude). A panoramic dental X-ray, which goes around your head, has about three to four times that amount of radiation. While these are small amounts of radiation, there's no such thing as a completely safe exposure; radiation is cumulative over your lifetime.

The question, of course, is what's necessary? According to guidelines written by the American Dental Association and the Food and Drug Administration in 2004 [[http://www.ada.org/sections/professionalResources/pdfs/topics\\_radiography\\_examining\\_patients.pdf](http://www.ada.org/sections/professionalResources/pdfs/topics_radiography_examining_patients.pdf)] (not including "Dr. Oz"), dentists should evaluate each patient. These guidelines advise that children who are not at a high risk for disease should get X-rays once every one to two years during a recall exam, with a history of decay that frequency doubles. Adults, under the same criteria are only slightly lower (i.e. an additional six months). Edentulous patients (those without teeth) should not need dental x-rays unless there is some suspicion of disease.

New patients being evaluated for general dental diseases should receive a full radiographic exam consisting of bitewings and periapicals or bitewings and panogram, this includes those with no teeth. Please note that digital x-rays will also significantly reduce your exposure over film x-rays and proper lead shielding should be used. Never rely on "the media" hype. Find a knowledgeable dentist you can trust and ask pointed questions.

If you have a history of dental problems, you'll likely need more X-rays than other people. But if you have a healthy mouth and aren't at high risk for dental decay or periodontitis, and have seen a dentist regularly, you don't necessarily need x-rays as frequently. Each patient should be assessed individually before getting an x-ray.

"It is important to point out that in epidemiological studies of humans, no actual increase in cancer incidence has ever been found in groups of humans who have received effective doses below 100 milliseverts (mSv). The effective doses associated with dental exposures are much, much smaller than this. Nevertheless, in order to come up with some estimate of harm for purposes such as setting standards for reasonable levels of exposures in medicine, it is assumed that the probability of harm seen at high doses decreases proportionally with dose and never becomes zero."

[<http://hps.org/hpspublications/articles/dentaldoses.html>]

Dose in microsieverts ( $\mu\text{Sv}$  ignoring variables)

Dental bitewing	5
Dental Panogram	10
Airplane flight NY-LA	40
Chest x-ray	100
Lumbar spine	1,500
Whole-body CT scan	10,000
Coronary angiogram	20,000

Internet articles you may find helpful and easy to read:

<http://www.cnn.com/2011/HEALTH/expert.q.a/03/30/thyroid.cancer.radiation.brawley/index.html>

[http://www.nytimes.com/2011/04/26/health/26brody.html?\\_r=0](http://www.nytimes.com/2011/04/26/health/26brody.html?_r=0)

<http://www.sciencebasedmedicine.org/index.php/dental-x-rays-and-brain-tumors-oh-my/>

more technical:

<http://hps.org/hpspublications/articles/dentaldoes.html>